

CLAIMS

1. AgroFibre slurry comprises mechanically processed agricultural fibres, AgroFibre, and a natural adhesive formulation, AgroBinder; the said mechanical processing of agricultural fibres is chemical-free in which the agricultural fibres are mechanically pressed, digested under hydrothermal conditions, cut and refined; the said natural adhesive formulation is carrier, no-carrier and carrier-no-carrier type which is starch-based, alkaline and viscosity stable that is biodegradable, self-retaining and water resistant.
2. The AgroFibre slurry as claimed in claim 1 wherein the agricultural fibres are digested at hydrothermal conditions using live superheated steam and at temperature between 150 to 250 deg C, and pressure between 0.3 to 3 MPa for a residence time of 10 to 120 min;
3. The AgroFibre slurry as claimed in claim 1 wherein the natural adhesive, AgroBinder, comprises water, starch carrier, ungelatinized starch, modified starch, green-bond developing agent and caustic.
4. The AgroFibre slurry as claimed in claim 3 wherein AgroBinder is manufactured by cooking starch carrier phase at pH between 12-14 to give gelatinized starch, and to which ungelatinized starch is added under continuous heating and stirring; green-bond developing agents are subsequently added and mixed for at least 30 min to obtain homogenous gelatinized mixture.
5. The AgroFibre slurry as claimed in claim 4 wherein AgroBinder is self-retaining to AgroFibre due to the addition of retaining aid, preferably oxidized starch, to the AgroBinder formulation.
6. The AgroFibre slurry as claimed in claim 5 wherein caustic, preferably in the form of aqueous solution, is added to the AgroBinder formulation.
7. The AgroFibre slurry as claimed in claim 6 wherein green-bond developing agent, preferably boron-containing compound, is added to the AgroBinder formulation.
8. The AgroFibre slurry as claimed in claim 7 wherein functional additives such as sizing, wet strength and grease barrier agents are added to the slurry to enhance functional performance as options for specific applications.
9. The AgroFibre slurry as claimed in claim 1 is obtained by thoroughly mixing AgroFibre with AgroBinder and water to form aqueous slurry.

- 10. The AgroFibre slurry as claimed in claim 9 is diluted with water to low consistency slurry between 0.1 to 3% as the feedstock for the manufacturing of moulded shape bodies and paper liners.
- 11. The AgroFibre slurry as claimed in claim 10 wherein vacuum forming and thermal curing process is used to manufacture moulded shape bodies.
- 12. The AgroFibre slurry as claimed in claim 11 wherein low consistency pulp is substituted with low consistency AgroFibre slurry for the manufacturing of paper liners.